UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

June 17, 2016

Catherine Jerrard
Program Manager/BEC
AFCEC/CIBW
706 Hangar Road
Rome, New York 13441

Re: EPA Comments on Review of the Draft Final Addendum #2, Remedial Design and Remedial Action Work Plan for Operable Unit 2, Revised Groundwater Remedy, Site ST012, Former Williams Air Force Base, Mesa, Arizona, March 15, 2016

Dear Ms. Jerrard:

On May 18, 2016 we emailed you partial comments prepared by Dr. Dan Pope of CSS-Dynamac, an expert in Enhanced Bioremediation (EBR) (see attached) on the subject document, ("EBR Workplan") and indicated we would be following up with a letter with additional comments to complete the response. Additional comments prepared by Dr. Eva Davis of EPA's Office of Research and Development Laboratory are also attached. While this revised EBR Workplan contains additional design information for the enhanced biological remediation portion of the remedy in response to our comments on the draft workplan, important comments on the ability of EBR to meet the remedial goals in the desired time frame have not been adequately addressed. We have the following additional comments as outlined below:

General Comments:

1. The 2013 Record of Decision Amendment for this site selected Steam Enhanced Extraction to remove as much of the jet fuel free product as possible from the site and follow on with Enhanced Bioremediation to degrade residual contaminants over time to meet the remedial action objective of reducing benzene concentrations to below MCLs within a twenty year time frame. As indicated in our previous comments, Enhanced Bioremediation is not considered an appropriate source control remedy for Non Aqueous Liquids (NAPL) and EPA did not anticipate that it would be used in this manner when the 2013 RODA was signed. As indicated in our previous letters of March 7, 2016 and May 3, 2016, the Steam Enhanced Extraction System was terminated early, while thousands of pounds of hydrocarbons were still being removed on a daily basis. The current reconnaissance efforts now in progress indicate that a significant amount of fuel NAPL remains at the site, which may exceed even the conservative estimates cited in the Addendum#2 RD/RA Workplan.

2. The 2013 ROD Amendment selected Steam Enhanced Extraction followed by Enhanced Bioremediation. The intent of the remedy approved by the regulatory agencies was that these treatments would be operated sequentially: Steam Enhanced Extraction treatment to be applied first to remove the bulk of LNAPL; followed by enhanced bioremediation to degrade residual contamination once the bulk of benzene, toluene, ethylbenzene, xylene (BTEX) constituents were depleted. The intent to now use EBR alone to degrade large quantities of untreated LNAPL represents a fundamental change to the remedy which has not been approved by the regulatory agencies. The current EBR workplan is now attempting to degrade large areas of LNAPL which have not received any steam treatment, employing a different remedy than selected in the ROD for these remaining areas of contamination: specifically a variation of Alternative 4, Enhanced Bioremediation and Ozonation, as outlined in the Focused Feasibility Study (FFS). As described in the FFS Alternative 4 was not selected due to "significant uncertainty over (remediation) timeframes, and without a pilot test there is uncertainty regarding the overall effectiveness of the remedy" (Page 89, Long Term Effectiveness and Permanence.) Such a change to the remedy, if approved by the agencies, would warrant a new Proposed Plan, Public Comment Period and Amendment to the ROD.

In further review of the Addendum #2 RD/RA Workplan significant additional comments have been identified concerning the proposed EBR amendment, as identified below.

Specific Comments:

1. The mass of remaining LNAPL has not been quantified. During the April 21 BCT call, your contractor clarified that the current characterization and reconnaissance effort is not intended to quantify the remaining mass. Without clearly established baseline conditions, How will progress of the remedy be evaluated? How the quantity of amendment will ultimately needed be determined?

2. The proposed sodium sulfate amendment contains arsenic, and the injection solution is likely to exceed 100 times the arsenic MCL. (See Eva Davis memo, attached) It is not clear if this is permissible under state law.

3. The sodium sulfate amendment has the potential to significantly increase the salinity of the water, and the Addendum 2 RDRA Workplan has not addressed this.

4. The amendment also has the potential to generate hydrogen sulfide gas, which the EBR workplan acknowledges but does not quantify, and does not present a contingency plan to address this public safety concern.

5. The phased approach has the potential to create new environmental hazards for the Air Force to address in the future, that were unforeseen at the time of the ROD, and unexpected from a reinterpretation of the remedy which has not been approved by the regulatory agencies.

6. EPA continues to be very concerned about the potential of the plume spreading, as indicated in or letter of May 3, 2016. The heated LNAPL is now more mobile and no

longer contained and may represent an emergency situation if hot fluids are allowed to spread uncontrolled.

The potential for spreading of the plume was also acknowledged as a significant concern in the FFS for EBR treatment alone under Alternative 4. Along with untested and uncertain efficacy, risks to the community and long term impacts to adjacent property as were previously identified in the FFS for Alternative 4, as well as the likelihood of creating a costly new environmental problem to address in the future, we believe the current proposal should be reevaluated and reconsidered, and emergency action should be taken to resume extraction for hydraulic containment.

If you have any questions regarding these comments, please contact me at (415) 972-3150.

Sincerely,

Carolyn d'Almeida

Carolyn d'Almeida
Remedial Project Manager

Enclosures

cc: Terie Glaspey, AFCEC/CIBW
Wayne Miller, ADEQ